

## ABSTRACT OF THE DISCLOSURE

A computer system comprising: (A) a CPU; (B) a memory arrangement comprising: (i) a side-wall memory array including a plurality of side-wall memory transistors; (ii) a  
5 charge pump; (iii) a plurality of switching circuits; and (iv) logic circuitry; and (C) a system bus, wherein each of the side-wall memory transistors comprises: a gate electrode formed on a semiconductor layer with a gate insulating film formed on the semiconductor layer; a channel region formed  
10 below the gate electrode; a pair of diffusion regions formed on the both sides of the channel region and having a conductive type opposite to that of the channel region; and a pair of memory functional units formed on the both sides of the gate electrode and having a function of retaining charges.